

A COMPARISON OF DIFFERENT WELL TYPES AND THEIR APPLICATIONS SUITABLE GEOLOGIC MATERIALS ADVANTAGES DISADVANTAGES OVERBURDEN both low- and high-yielding materials (gravel, sand, silt, clay) Does not require special machinery to construct Large diameter provides reservoir storage; augments low yields Can be constructed in areas of limited access Dabour intensive to construct Well failure is common during dry periods because of usually shallow depths BORED WELLS OVERBURDEN both low- and high-yielding materials (gravel, sand, silt, clay) OVERBURDEN both constructing largediameter wells well-drilling equipment limitations and very storage; augments hard earth materials low yields DRILLED WELLS OVERBURDEN AND BEDROCK moderate to high-yielding materials (sand, gravel, sandstone, limestone) OCAn reach deeper depths than other techniques Can penetrate bedrock Generally small-diameter wells with little reservoir storage capacity OVERBURDEN moderate to highyielding materials (sand and gravel) Simple installation: can be done by hand or machine A number of these A number of these Wells can be based wells can be based wells can be hooked depends on tightne into one water-supply of overburden

YIELDS FROM BEDROCK - SUMMARY

Most wells in bedrock yield less than 2 or between 2 and 10 gallons per minute. These wells penetrate limestones and shales of the Gull River and Shadow Lake formations or, in the northeast portion of the map area,

ompleted in highly-fractured bedrock.

Much of the map area to the south and west, and in Matchedash Township in the north-central portion of the map area, have too few wells for interpretation of probable yields to bedrock wells. In these areas probable yields of individual wells are marked on the map. In the area to the south and west, adequate water supplies likely can be obtained from the overburden.

Bedrock-surface elevations derived from water-well records on file with the

Bedrock topography compilation and interpretation by M. E. Turner, 1980.

Base maps derived from 1:50 000 map sheets of the National Topographic

Ontario Ministry of Environment up to September, 1979.

Cartography by D. McQuillan.

50 feet below ground surface

100 feet below ground surface

200 feet below ground surface

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SHEET 3

WATER SUPPLIES IN BEDROCK



It is important to note that the interpreted probable well yields may not everywhere represent yields available to all wells because of variations in local hydrogeology, type of well construction, and in the reliability of available data. However, the indicated yields are thought to be good approximations in most areas. In cases where reliable, long-term yields are sought, it is necessary to ASSESSING WATER REQUIREMENTS In order to evaluate well yields, the amount of water required from a prospective well should first be estimated. To estimate the approximate domestic and livestock daily water requirements, multiply the number of users (people and animals) by the appropriate figure in the table below. If desired, an additional 20 to 30% can be added to the total to account for increased demand in the future. While individual residential needs are difficult to estimate, most homes with water-consuming items such as washing machines will average about 100 gallons per day 4 Limestone, shale, interbedded : Verulam Formation per person.

It is important to take into account the water demand during peak periods of usage in order that the well does not run dry temporarily. This demand can be Bobcaygeon Formation Gull River Formation Shadow Lake Formation Approximate Dally Water Requirements 1 Granite gneiss, red; minor grey crystalline limestone (kitchen, laundry, bath)

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estimated by counting the number of fixtures and water outlets in the house which will be used at one time, and multiplying by the flow rate for each. Tables showing the flow rate per fixture can be obtained from water-supply equipment dealers. 50-150 gallons per day for each producing milk cow (incl. washing) for each dry cow for each steer, horse for each hog for each sheep for each 100 chickens for each 100 turkeys 35 gallons per day 15 gallons per day 12 gallons per day 4 gallons per day 2 gallons per day 6 gallons per day 12 gallons per day

Note: — table modified from F. R. Hore, Farm Water Supply, Ontario Department of Agriculture and Food, Publication 476 For information on irrigation requirements, contact your Regional Office of the Ontario Ministry of Agriculture and Food.

Evaluation Procedure

To evaluate water quality:

1. locate the well site on Map 3126-1 of Sheet 1 (Yields from Shallow

3. refer to the legend and relate the colour to the appropriate probable yield;

4. if the probable yield does not meet your water requirements, repeat steps one through three using Map 3126-3 on Sheet 2 (Yields from Deep Overburden). Similarily, if probable yields determined from Map 3126-3 are insufficient, repeat the same steps using Map 3126-5 on Sheet 3 (Yields from Bedrock).

5. If Map 3126-1 was selected in the above steps, water-bearing zones occur

at depths easily reached by shallow dug and bored wells and sand points; if Map 3126-3 was selected, locate the well site on Map 3126-4 and note

the depth to the water-bearing zones by using the legend; if Map 3126-5 was selected, locate the well site on Map 3126-6 and note the depths to

exact depths to water-bearing zones for individual wells are shown on maps 3126-1, 3126-3 and 3126-5.

7. to evaluate the likely ground-water quality at a potential well site, locate

the well on the selected yield map and note the nearby ground-water sampling points. Chemical analyses of these samples are found in the

Inorganic Chemical Analyses (tables 1, 2, and 3) on Sheet 4. To interpret the significance of the analyses, refer to the "Water Quality" section on Sheet 4.

note the colour of the map at the well site;

To evaluate the depths to water-bearing zones:

the water-bearing zones by using the legend;